Testimony for the ERISA Advisory Council to address:
What useful information do participants need to make an informed decision in a risk transfer transaction, and how would you suggest getting this information to participants?

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Thank you for inviting me to testify about the information participants need to make informed decisions in risk-transfer transactions. My name is Wade D. Pfau, and I am a professor of retirement income in the Ph.D. program in financial services and retirement planning at the American College in Bryn Mawr, PA. I am also a principal at McLean Asset Management, and I operate the Retirement Researcher website.

Sustainable-spending rates for retirement depend on many factors: asset- and product-allocation, market valuations at the start of retirement (particularly, current interest rates), the desired spending pattern over retirement, the degree of flexibility to adjust spending in response to market performance and the length of the participant's planning horizon.

There are two fundamentally different ways to think about sustainable spending in retirement. What I call 'safety-first' methods use dedicated-income sources with contractual guarantees to provide the targeted income amounts at specific points in time. This provides a mechanism to shift market risks and longevity risks to other parties. What I call 'probability-based' methods rely on spending from a volatile investment portfolio with the hope that the strategy can be maintained for the life of the retiree. With this approach the retiree maintains the longevity and investment risks, and it also requires the retiree to maintain responsibility for their spending and investment strategy. Plan participants receiving a lump-sum have to make fundamental choices between these two approaches.

Other speakers will surely cover important issues related to psychology and human behavior and how this affects decision-making of participants. In my testimony, I wish to first explain how retirement income planning is fundamentally different from the period in which plan participants were saving and accumulating in their accounts, and I will then provide some specific numbers about how much participants may be able to spend from their retirement plan assets by following different retirement income strategies.

Retirement income planning as a distinct field

Retirement income planning has emerged as a distinct field in the financial services profession. And while it suffers from many growing pains as it gains recognition, increased research and brainpower in the field have benefited those planning for retirement and retirees alike. One matter has become even clearer than before: the financial circumstances facing retirees differ dramatically from pre-retirees.

Those entering retirement are crossing the threshold into an entirely foreign way of living where they are vulnerable to several risks more uniquely felt by retirees:

Reduced earnings capacity

Retirees face reduced flexibility to earn income in the labor markets as a way to cushion their standard of living from the impact of poor market returns.

Visible spending constraint

While investments were once a place for saving and accumulation, retirees must try to create an income stream from their existing assets, an important constraint on their investment decisions. This amplifies investment risks by increasing the importance of the ordering of investment returns in retirement.

Heightened investment risk

Retirees experience heightened vulnerability to sequence of returns risk once they are spending from their investment portfolio. Poor returns early in retirement can push the sustainable withdrawal rate well below what is implied by long-term average market returns.

The financial market returns experienced near one's retirement date matter a great deal more than most people realize. Retiring at the start of a bear market is incredibly dangerous. The average market return over a 30-year period could be quite generous, but if negative returns are experienced in the early stages when someone has started spending from their portfolio, wealth can be depleted rapidly through withdrawals, leaving a much smaller nest egg to benefit from any subsequent market recovery, even with the same average returns over a long period of time.

The dynamics of sequence risk suggest that the retirement prospects for a particular group of retirees could be jeopardized by a prolonged recessionary environment early in retirement without an accompanying economic catastrophe. Particular retiree groups could experience much worse retirement outcomes than those retiring a few years earlier or later, and devastation for a group of retirees is not necessarily preceded or accompanied by devastation for the overall economy.

Unknown longevity

The fundamental risk for retirement comes in the form of unknown longevity. The length of one's retirement could be much shorter or longer than a person's statistical life expectancy. A long life is wonderful, but it is also more costly and a bigger drain on a retiree's resources. How long will a retirement plan need to generate income? Half of the population will outlive their statistical life expectancy, and some will live much longer.

Spending shocks

Unexpected expenses could relate to any number of matters, including health and long-term care needs, fraud and/or theft, an unforeseen need to help other family members, changes in public policy, divorce, changing housing needs, home repairs, and rising prescription costs. Retirees must preserve flexibility and liquidity to manage unplanned expenses. When attempting to budget over a long retirement period, it is important to include allowances for such contingencies.

Compounding inflation

Retirees face the risk that inflation will erode the purchasing power of their savings as they progress through retirement. Low inflation may not be noticeable in the short term, but it can have a big impact over a lengthy retirement, leaving retirees vulnerable. Even with just three percent average annual inflation, the purchasing power of a dollar will fall by more than half after 25 years.

Declining cognitive abilities

Finally, a retirement income plan must take into account the unfortunate reality that many will experience declining cognitive abilities, hampering portfolio management and other financial decision-making skills. It will become increasingly difficult to make sound portfolio investment and withdrawal decisions as one enters advanced ages.

In addition, many households do not share management of personal finances equally. When the spouse who manages the finances dies first, the surviving spouse can run into serious problems without a clear plan in place. The surviving spouse can be left vulnerable to financial predators and make other financial mistakes.

Retirement income options

Not all is bleak, as retirement plans can be built to manage these varying risks. This is why retirement income planning is now emerging as a distinct field. Retirement plan participants require information about how to make appropriate decisions when faced with these two broadly different approaches to building a retirement income strategy. I believe that an important part of the best practices to provide this specific information to participants about how much they can spend with different strategies for their plan assets. I developed the Retirement Dashboard at my website as a potential example for how this information can be shared with plan participants. Specifically, I will explain the section of the dashboard on "The Cost of Retiring Today – Sustainable Spending Rates for Retirement," and how this information can help to inform the decision-making of plan participants.

For my statement, the analysis I provide is designed specifically for a married couple who both turned 65 in April 2015. I estimated the sustainable-spending rates for two very different types of retirement-income strategies: those based on dedicated-income sources that can match participant spending needs without exposing the retiree to market volatility, and those based on investment portfolios in which market volatility will play a much larger role in determining retirement sustainability.

Sustainable spending from dedicated-income sources

This section of the dashboard provides an overview of the situation for funding retirement with dedicated-income sources, using different combinations of income annuities and individual bonds. For a 65-year-old couple, I consider three different retirement-income strategies for three different types of retirement spending goals, producing the nine numbers shown in Table 1.

Table 1: Dedicated Income
Spending Rates Obtainable for 65-Year Old Couple, April 2015

Income Growth Factor	SPIA	30-Year Bond Ladder	20-Year Bond Ladder + DIA @ 85
Fixed (No Growth)	5.37%	4.55%	4.88%
2% COLA	4.24%	3.51%	3.89%
CPI-U Adjusted	3.63%	3.48%	3.81%

Notes: SPIA & DIA rates are based on the average of top three quotes from Cannex for life only benefits using $100,000 of non-qualified funds for a joint and 100% survivors annuity. Bond ladders are based on Treasury strips (fixed and 2% growth) and TIPS (CPI-U adjusted) using wholesale prices from *Wall Street Journal* assuming a 1.5% mark-up in price for retail investors. For the CPI-U Adjusted DIA, a 1.8% inflation rate is assumed to calibrate initial income in 20 years.

The three strategies shown in the table for a 65-year old couple are:

1. Buy a joint and 100% survivor's life-only single-premium immediate annuity (SPIA).

2. Buy a ladder of bonds maturing over the next 30 years.

3. Buy a ladder of bonds maturing over the next 20 years and purchase a deferred-income annuity (DIA), which will continue the same income level and trend in years 21 and beyond

SPIA & DIA rates are based on the average of the top three quotes from Cannex (except for CPI-U products, since there are only two carriers at present) for life-only benefits using $100,000 of non-qualified funds for a joint and 100% survivor's annuity. Bond ladders for fixed and 2% growth spending are based on Treasury strips, while TIPS are used for CPI-U adjusted spending, using wholesale prices from the *Wall Street Journal*, and assuming a 1.5% mark-up in price for retail investors. For the CPI-U adjusted DIA, a 1.8% inflation rate is assumed to calibrate initial income in 20 years. This is the current breakeven inflation rate predicted over 20 years by the yield differences between TIPS and nominal Treasury bonds.

The SPIA strategy is able to support income much closer to the couple's actual remaining life expectancy based on an underlying portfolio consisting mostly of fixed income. Unlike the traditional 4% spending rule, this strategy adjusts for current interest rates, which along with increasing longevity explain why SPIA rates are lower today than they have been in the past. The assets used to purchase a SPIA are illiquid, and there would be no further upside potential. The advantage is that the SPIA eliminates market and longevity risk for the participant (other than the credit risk of the issuing insurance company).

If the participant does not seek any growth in spending over retirement, the SPIA strategy can support an initial payout rate of 5.37%, meaning that a $100,000 premium will support $5,370 of income per year (paid monthly) for as long as at least one spouse remains alive. With an automatic annual 2% increase in spending power, the payout rate is 4.24% of initial assets. It is less initially, but spending will grow throughout retirement. Finally, if the participant seeks inflation-protection by having the SPIA adjust for changes in the consumer price index

(specifically, the CPI-U), the initial payout rate is 3.63%. Long-term market expectations for inflation are currently low (less than 2%) as implied by the Treasury and TIPS markets. This makes the CPI-adjusted SPIA particularly expensive at the present, perhaps because of the lack of competition in this market and the difficulties of hedging long-term inflation beyond 30 years. However, if realized inflation is higher than expected, participants will be thankful for adding this rider.

The next strategy is to build a 30-year ladder of bonds. For the cases of no spending growth and 2% spending growth, I use Treasury strips data. For CPI-U-adjusted spending, I use TIPS. These calculations require data for the entire yield curve with bonds maturing in each year over the subsequent 30-year time horizon. To calculate sustainable spending with a bond ladder requires determining how much it will cost to purchase bonds providing the desired spending pattern, and then calculating the initial payout rate implied by this cost. I provide a full explanation for calculating the cost of a TIPS ladder on my blog. The current payout rates from a bond ladder are 4.55% with no spending growth, 3.51% with 2% spending growth and 3.48% for CPI-adjusted spending growth. Comparing these rates with the SPIA rates, income annuities are relatively attractive when not using CPI adjustments, but the spread is much closer with CPI adjustments.

The final strategy in the table is to combine a 20-year bond ladder with a DIA. This strategy was developed by Professor S. Gowri Shankar at the University of Washington. With no spending growth, the payout from this strategy is 4.88%. This strategy would support precisely the same spending stream as the SPIA offering a 5.59% payout. The difference in the payout rates can be attributed to the liquidity and the ability to bequest any assets from the 20-year bond ladder in the unfortunate case that the retiree does not live at least 20 years.

Relative to a simple 30-year bond ladder, this hybrid strategy is quite attractive. By giving up liquidity for a small portion of assets (it would require 16% of assets to purchase the DIA, with the other 84% of assets used for the 20-year bond ladder), the participant could sustain 7% more income (the difference between 4.88% and 4.55% payouts) than could be sustained with the bond ladder. The participant would also have a contractual guarantee that this income would continue beyond year 30. The trouble with a 30-year bond ladder is the lack of provisions for income in year 31.The participant may have a concern about the credit risk for the DIA issuer but would have to weigh this concern against the higher income and longevity protection from the hybrid approach.

As for the CPI-adjusted case, the hybrid bonds/DIA strategy can support a higher payout than either annuities or bonds alone. This is partly because of the low payout currently offered for the CPI-adjusted SPIA. Also, it is impossible to avoid some inflation risk with the hybrid strategy. Currently, there is no DIA that provides inflation protection for the initial payout made in the future. CPI-adjusted DIAs only provide inflation protection for spending after the initial amount. This requires an assumption about inflation until the DIA payments begin. In this case I used the 1.8% breakeven inflation rate implied by the bond market to calculate the amount of DIA to purchase. To the extent that inflation differs from this expectation over the next 20 years, there will be a significant jolt to the real spending power provided by the strategy in year 21 of retirement.

Sustainable spending from volatile investment portfolios

The next set of strategies includes specific allowances for portfolio depletion because they are based on volatile investment asset classes (stock and bond funds). Before continuing this discussion, let's recognize and understand why sustainable spending rates for these strategies can be less than with dedicated income. For example, the conservative sustainable withdrawal rate with inflation-adjusted income is reported in Table 2 as 2.29%. I frequently hear people question how this could possibly be since a 30-year TIPS ladder supports 3.48%. The answer is risk: both market and sequence-of-returns risks. Sustaining an income stream from a volatile portfolio is a complicated task that creates a great deal of downside risk as well as upside potential. A 2.29% withdrawal rate might create a 5% chance for failure, but a participant could end up fine using an 8% withdrawal rate. We cannot know in advance what the specific sequence of returns will be, so sustainable withdrawal rates must inherently be conservative to allow the spending rate to work in the vast majority of cases. While there is additional upside potential with these strategies, initial projected spending rates *can* be less than with dedicated income. Early market declines in retirement will create a hole from which recovery may not possible.

Table 2: Volatile Investments
Sustainable Spending Rates from an Investment Portfolio over 30 years, April 2015

Spending Strategy	Conservative	Moderate	Aggressive
Fixed Spending (No Growth)	4.02%	4.41%	5.09%
Spending with 2% COLA	3.06%	3.42%	4.00%
Inflation (CPI-U) Adjusted Spending (i.e. "the 4% rule")	2.29%	2.78%	3.50%
Guyton and Klinger Decision Rules	4.70%	5.31%	6.02%
David Zolt's Target Percentage Adjustment: No CPI Increase	3.12%	3.78%	4.69%

Notes: The conservative couple uses a 25% stock allocation and seeks a 95% chance that the portfolio will not be depleted within 30 years. The moderate couple uses a 50% stock allocation and seeks a 90% chance that the portfolio will not be depleted within 30 years. The aggressive couple uses a 75% stock allocation and seeks an 80% chance that the portfolio will not be depleted within 30 years. Analysis assumes that withdrawals are made at the start of each year, a 0.5% portfolio administrative fee is deducted at the end of each year, and market return simulations are based on capital market assumptions defined in the appendix.

Table 2 reports sustainable-spending rates for conservative, moderate and aggressive participants, using five different retirement spending strategies. The conservative couple uses a 25% stock allocation and seeks a 95% chance that the portfolio will not be depleted within 30 years. The moderate couple uses a 50% stock allocation and seeks a 90% chance that the portfolio will not be depleted within 30 years. The aggressive couple uses a 75% stock allocation and seeks an 80% chance that the portfolio will not be depleted within 30 years.

Aggressive behavior means investing and spending more aggressively. Aggressive spending is realized through greater allowance for failure (i.e. portfolio depletion). The analysis assumes that withdrawals are made at the start of each year, a 0.5% portfolio administrative fee is deducted at the end of each year and market return simulations are based on capital market assumptions described in the appendix.

The first three spending strategies are the same as those found in the discussion for dedicated income: constant spending, spending that grows by 2% and spending that adjusts for inflation (CPI-U). Naturally, aggressive participants can comfortably spend more than conservative participants, but they are implicitly accepting a greater chance that their spending will have to deviate from the strategy for the worse. Nonetheless, even the aggressive participant cannot expect to use as high an initial spending rate as with SPIA. Keeping liquidity and upside potential (a chance to either raise future spending or to leave a larger legacy) is wonderful, but the "cost" of maintaining these options is to start retirement with a lower spending rate than with dedicated income. Of course, advisors and participants should evaluate the advantages and disadvantages when deciding which strategy to use. Moderate participants could expect to spend a little less initially than what could be supported with the 30-year bond ladder with Treasury strips, and a lot less when CPI-adjusted spending is desired. Aggressive participants could start retirement by spending a little more (except in the CPI adjusted case) than the hybrid bond/DIA strategies. Conservative participants ultimately must question whether volatile portfolios will be appropriate for their situations and preferences, as their initial spending could be substantially higher using dedicated income strategies.

The 4% rule worked historically. Participants could have withdrawn 4% of their retirement date assets and sustained this inflation-adjusted amount over 30 years – assuming they did not pay any investment management fees and earned the precise underlying index returns. However, it is not clear if the strategy can be expected to work when retiring at a time with such low interest rates. Even an aggressive retiree should consider beginning their retirement with a spending rate less than 4% when seeking inflation-adjusted spending. This issue was discussed in a previous article, which I co-authored with Michael Finke and David Blanchett.

The two remaining strategies in the table are for participants willing to make spending adjustments in response to market returns. In reality, all participants will use some sort of variable spending strategy. No one would continue the prescribed inflation-adjusted spending as their portfolio plummeted toward zero. In addition, as Dirk Cotton of the Retirement Café blog formalized, constant spending from a volatile portfolio is a unique cause of sequence risk. This is a risk that cannot be diversified away. If a participant wishes to use a volatile portfolio, adjusting spending in response to market returns can create disproportionate improvements to spending rates because sequence-of-returns risk is mitigated when a participant withdraws less from a declining portfolio.

There are countless ways to devise strategies that respond to market returns. Some approaches would not have any failure, such as spending a fixed percentage of the remaining portfolio each year or guiding spending with the IRS RMD rules. But spending could still fall to painfully low levels. Without a technical failure being possible, those strategies cannot be simulated in the context of this table. But two of the more prominent variable spending strategies that can lead to portfolio depletion are Jonathan Guyton and William Klinger's Decision Rules and David Zolt's Target Percentage Adjustment.

To replicate the Guyton and Klinger Decision Rules, I did the following. Each year, spending adjusts for inflation unless the portfolio had a negative return in the previous year and this year's withdrawal rate (current spending divided by remaining assets) is higher than the initial withdrawal rate at the retirement date. The "prosperity rule" increases spending by 10% in any year that the current withdrawal rate falls to be 20% less than its initial level. The "capital

preservation rule" cuts spending by 10% during the first 15 years of retirement if the current withdrawal rate rises to be 20% more than its initial level. With the decision rules, spending can increase faster than inflation when the markets are doing well, and can fall even in nominal terms when the portfolio is losing value.

David Zolt's Target Percentage Adjustment calls for more moderate spending adjustments. Given a fixed-return assumption and a 45-year time horizon, he calculates how much wealth should remain for each year of retirement. In any year that remaining wealth is higher than critical number from his calculation, spending adjusts for inflation. However in any year that wealth falls below where it should be as implied by this critical path, no inflation-adjustment is made. Throughout retirement, sometimes spending adjusts for inflation and sometimes it stays fixed.

Table 2 shows that spending can begin at a dramatically higher level using the Guyton and Klinger Decision Rules. Intuitively, providing a framework to adjust spending downward when markets are not doing well can support starting retirement at a higher initial spending level. With my capital market expectations, a conservative participant can start with a 4.7% withdrawal rate, and presently the 6% barrier can be broached for an aggressive participant. That is the highest spending rate found in either table. Meanwhile, though the initial withdrawal rates do not increase by as much, David Zolt's strategy is also particularly helpful for increasing the initial spending rate beyond some alternatives, which set the entire future path of spending in advance. While the spending rate is not as high as with fixed spending, spending rates are higher than the inflation-adjusted or 2% spending growth strategies.

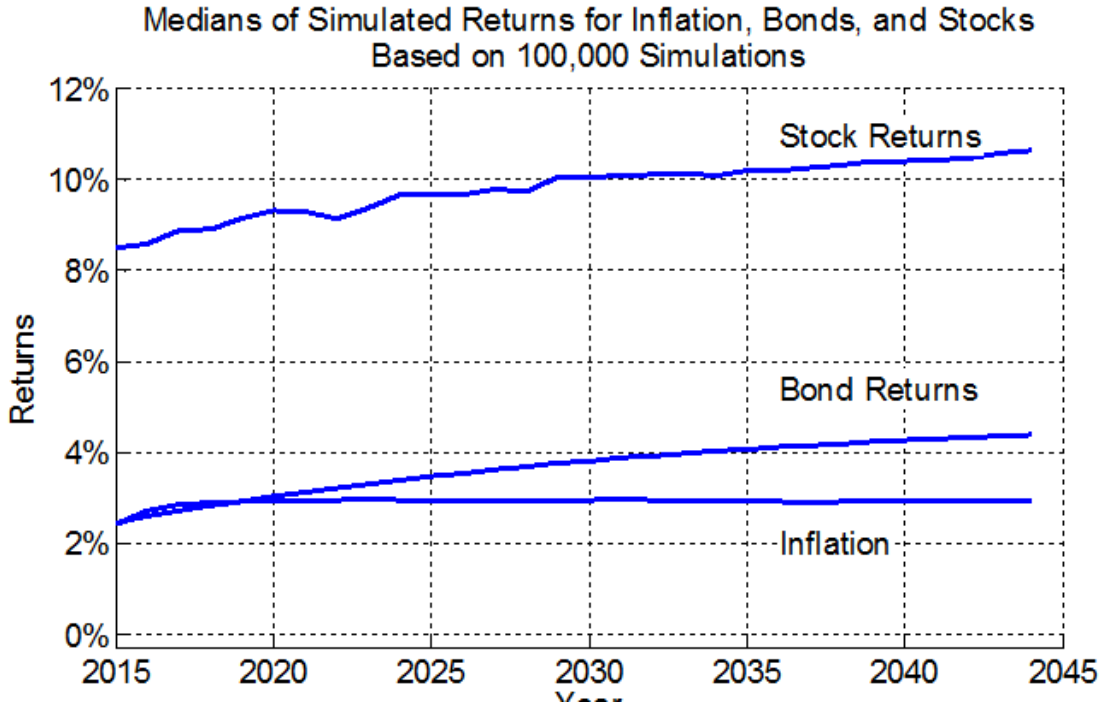
Concluding comments

Sustainable spending is related to current market conditions. There are also a wide variety of approaches to consider with regard to spending patterns over retirement, flexibility to adjust spending and investment choices. For these reasons, my Retirement Dashboard will provide frequent updates about sustainable spending for retirees with a wide variety of spending strategies. My hope is that this will help policy makers, financial advisors, and plan participants with the decision-making process. I thank you for the opportunity to present this information to you today.

Appendix

My market expectations connect the historical averages from Robert Shiller's dataset with the current values for inflation and interest rates. This makes allowances for the fact that interest rates and inflation are currently far from their historical averages (which is particularly important for retirees because of sequence risk - early returns matter disproportionately), but it also respects historical averages and does not force returns to remain low for the entire retirement period. Figure A1 shows the median simulated outcomes for this approach.

Figure A1


Medians of Simulated Returns for Inflation, Bonds, and Stocks
Based on 100,000 Simulations
12%
10%
8%
6%
4%
2%
0%
Returns
Stock Returns
Bond Returns
Inflation
2015
2020
2025
2030
2035
2040
2045